

Quarantine Report

Sumatran Rhino “Pahu” Kutai Barat, East Kalimantan

28th November 2018 – 20th March 2019



Oleh:

Drh. Dedi Candra M.Si. (*Chief of Veterinary*)

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INTRODUCTION

Sumatran Rhino (*Dicerorhinus sumatrensis*) is rare protected animal categorized in IUCN as critically endangered. Based on data of Population and Habitat Viability Analysis (PHVA) 2015, sumatran rhino population estimated less than 80 in the wild. These animal also found in Borneo Island with very small number.

In Sunday 25th November 2018 at 07.30 WITA, sumatran rhino named "Pahu" found in pit trap 4, in tunuq river pocket 3 area, Kutai Barat. Pit trap method used to capture sumatran rhino considered to be low risk, which designed with safety wall inside and leaf as flooring. "Pahu" translocated to Hutan Lindung Kelian Lestari (HLKL) known also as "Sumatran Rhino Sanctuary (SRS) Kelian". Pahu arrived on 28th November 2018 and was placed in "Boma" for quarantine period of 3 months. Initial health assesstment was done with experts in 29th November – 3rd December 2018. Based on physical observation, laboratory examination, and discussion with rhino experts "Pahu" diagnosed with mild capture myopathy.

Translocation sumatran rhino "Pahu" to SRS Kelian was done based on decision letter of General Director KSDAE number P.01/KSDAE/SET/KSA.2/ 2/2018 about Standard Operation Procedure Translocation of Javan Rhino, Sumatran Rhino, and Rhinoceros in Kalimantan. Sumatran rhino rescue operation by capture and tranlocation is an important step because current critical condition of sumatran rhino in borneo. Meanwhile, sumatran rhino rescue team in Kutai Barat consists of experts from government, partner, and rhino conservation organization, as decision letter of General Director KSDAE number SK. 93/KSDAE/SET/KSA.2/2/2018 Jo SK.321/KSDAE/SET/KSA.2/ 2/2018. Team consists of rhino health team, capture and monitoring team. Rhino health team was coordinated by Chief of Veterinary.

Aim

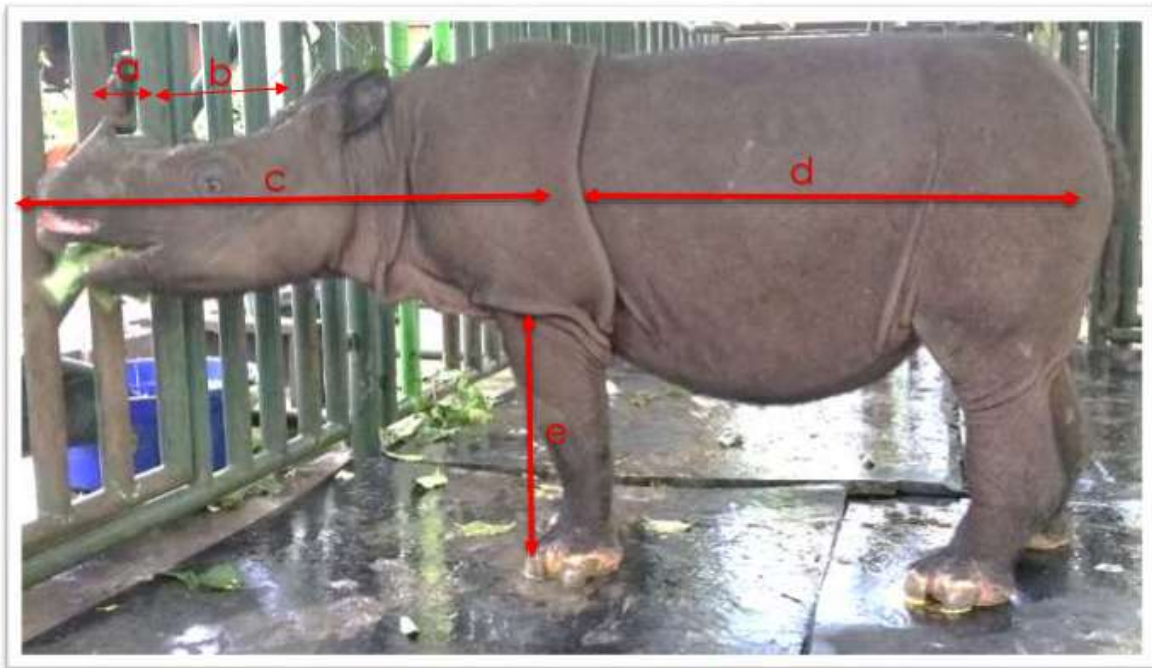
Performing quarantine to newly captured sumatran rhino "Pahu" in Kutai Barat, East Kalimantan before realease into wider location (Paddock).

Time and Place

Quarantine period started in 28th November 2018 and finish at 21 march 2019 in SRS Kelian, Kutai Barat, East Kalimantan.

RESULTS

Identification : Sumatran Rhino "PAHU"
Taxonomi : *Dicerorhinus sumatrensis harrisoni*
Sex : Female
Age : ~ 25 years



- Anterior horn to posterior horn: 7.5 cm
- Body length: 194 cm
- Front leg height: 52 cm
- Body width: 58 cm
- Tail measurement: 39 cm
- Anterior horn height: 9 cm
- Posterior horn height: 3 cm
- Shoulder height: 107 cm

MEDICAL RECORD

Weight : 323 - 367
Heart Rate : 48 – 72 per min
Respiration : 12 – 16 per min
Rectal Temperature : 36.1 – 37.8⁰C

Tissue growth found in based of tail above anus and in vulva, with round shape. Cut in both ears. Enlarged udder producing milk also noticed. Crack in all legs noticed.

During translocation, Pahu was administered **Stressnil[®]** (Azaperone 40 mg/ml) 1 ml intramuscularly to reduce stress at loading transportation crate to vehicle. Pahu was calm with standing position, effect of drug gone after 4 hours.

Clopixol Acuphase[®] (Zuclopenthixole acetate) administered at:

- H1 in pit trap (25th November).
- H1 in treatment cage (28th Novemeber).
- H-1 release into paddock (19 March).

Effect of the drug was unobserved. Based on translocation experience in other place administration of zuclopethixole acetate reduced mortality in various species.

Omeprazole administration started H1 in pit trap to prevent gastric ulcer cause by increased stress which is common for stressed rhinoceros.

Omeprazole given was **Gastrozol[®]** dan **E-Gard[®]**:

- Gastrozol (Preventive) 500 mg 4th – 5th December.
- E-Gard (Curative) 1155 mg 6th December – 2nd January.
- Gastrozol (Preventive) 350 mg 14th January – 10th march.
- E-Gard (Preventive) 456 mg 11st march – now.



Mass on vulva and under base of tail.

Blood results of Sumatran Rhino "Pahu"

Parameters	12/1/18	12/14/18	1/29/19	2/5/19	2/13/19	2/23/19
Haemoglobin (g/dl)	11.3	12.5	11.8	13.4	10.1	13.3
Leucocytes (/cmm)	12,000	12,000	9,500	9,800	6,200	7,400
Thrombocytes (/cmm)	226,000	329,000	153,000	171,000	116,000	81,000
Erythrocytes (mil/cmm)	4310000	4780000	4400000	4950000	3680000	4780000
Hematocrit (%)	34	36.4	35.5	40.2	29	39.3
Lymphocytes (%)	4	9	-	-	-	-
Net. Band (%)	33	80	-	-	-	-
Net. Seg (%)	62		-	-	-	-
Eosinophil (%)	-	-	-	-	-	-
Basophil (%)	-	11	-	-	-	-
Monocytes (%)	1		-	-	-	-
MCV	78.8	76.1	80.6	81.2	78.8	82.3
MCH	26.2	26.2	26.8	27.1	27.4	27.8
MCHC	33.3	34.4	33.3	33.3	34.8	33.8
SGOT(U/l)	326	121	94	85	96	90
SGPT(U/l)	69	20	15	18	22	23
Ureum	8	13	13	7	8	6
Creatinine (mg/dl)	0.4	0.6	0.8	0.5	0.5	0.5
Total Billirubin (mg/dl)	-	0.17	-	-	-	-
Total Protein	8	9	-	-	-	-
Cholesterol (mg/dl)	30	49	-	-	-	-
Albumin (g/dl)	2.5		2.6	2.8	2.7	2.8
Glucose (mg/dl)	-	-	-	-	-	-
Calcium (mg/dl)	-	-	-	-	-	-
Poshphor (mg/dl)	-	-	-	-	-	-

Based on blood results of 1st December, Urea increase because of catabolism and anorexia during pit trap period and new environment (transportation, boma, human). Increased SGOT due to trauma of fall into pit trap and excitation in transport crate during translocation. These finding suggesting mild capture myopathy. Abnormal value return to normal range during quarantine period as Pahu adapted to new environment.

Urinalysis results

Parameters	12/1/2018	12/24/2018	1/8/2019	1/26/2019	3/11/2019	3/27/2019
Leucocyte	2 – 3	-	-	-	-	-
Nitrite	-	-	-	-	-	-
Urobilinogen (mg/dL)	-	0.2 (3.5)	0.2 (3.5)	0.2 (3.5)	0.2 (3.5)	0.2 (3.5)
Protein (mg/dL)	-	15(0.15)	15(0.15)	15(0.15)	15(0.15)	15(0.15)
pH	8.4	8	8	8	9	9
Blood	-	-	-	-	-	-
Specific Gravity	1.015	1.02	1.01	1.01	1.01	1.015
Ketone	-	-	-	-	-	-
Billirubin	-	-	-	-	-	-
Glucose	-	-	-	-	-	-

Sumatran rhino urine almost like horse urine, with large calcium carbonate crystal, resulting in urine color milky yellow. Urinalysis was done using reagent strip (Verify®) from fresh sample opportunisticly. In 1st December leucocytes was found, suspected because of capture and translocation process. Routine examination will be done to detect abnormality.

X-Ray Results

X-ray was done as supplementation for diagnosis of lameness, but dental x-ray was also performed.



Rostal hook was found in the last upper molar. These finding could potentially disrupt chewing pattern of Pahu.

Parasitology and Bacteriology

Date	Method	Laboratory	Results
1 st Dec 2018	Blood Smears	IPB	<i>Babesia sp.</i> (0.2 - 0.4%)
			<i>Theileria sp.</i> (0.6 - 0.8%)
	Microscopic exam	RS HIS	<i>Ascaris lumbricoides</i>
	Microscopic exam	Balai Veteriner Banjarbaru	-
	Blood Smears		-
	ELISA (<i>Trypanosoma sp.</i>)		-
	SE ELISA		-
14 th Dec 2018	Blood Smears	RS HIS	-
28 th Feb 2019	ELISA (<i>Trypanosoma sp.</i>)	Balai Veteriner Banjarbaru	-
	Blood Smears		-
	Bacteriology		<i>Salmonella sp</i>
			<i>Actinobacter</i>
			<i>Coryne</i>
Fecal Flotation	-		
3 rd Apr 2019	Direct Fecal Smear	InHouse	-
	Fecal Flotation (Salt)		-
	Fecal Flotation (Sugar)		-
	Fecal Sedimentation		-

Hemoparasite was in IPB laboratory with relatively small amount. These finding was in line with Andriansyah *et al.*, 2008 who found *Anaplasma sp.*, *Theileria sp.* and *Babesia sp.* in sumatran rhino of SRS Way Kambas which considered as normal in small number.

Endoparasite was only found in HIS Hospital, and negative in further examination.

Bacterial culture found *Salmonella sp* in 28th February from rectal swab for 5 consecutive days. This result was come back in mid April from BVet Banjarbaru Laboratory, which was very late. This finding suggesting subclinical infection which follow up by routine Fecal Occult Blood (FOB) test to detect blood in feces, the results was negative. Treatment was done in 11th – 18th march with sulfa-trim antibiotics for different indication (lameness). Other bacteria found was *Actinobacter* and *Coryne* which considered to be normal flora in others rhino.

Ectoparasite found was *Tabanus sp* and *Amblyoma sp.* *Amblyoma sp.* has been eliminated during quarantine period but found again after realease into paddock, suspected be transmitted from pervious wild boar in the paddock. Both of these ectoparasites are blood sucking parasite which could potentially be vector for disease transmission. Based on serology test, Pahu never exposed to *Trypanosoma sp.* which further exposure could potentially be fatal. 2 unit of homemade NZi Trap was applied in nearby treatment cage for control.

Lameness

- 9th January weight bearing lameness first observed on Right hind leg (3/5). Initial examination revealed two horizontal cracks on medial digit. No abnormality found in interdigits. Sole unable to observe since Pahu refuse to recumbent in treatment cage.
- 16th January swelling observed around coronary band of medial toe right hind leg. Widrawal response noticed when palpated.
- 17th January coronary separation was noticed.
- 18th January lameness improved (1/5).
- 21st January lameness unobserved.
- 10th February weight bearing lameness recurrent was noticed on right hind leg (1/5), the condition improved without intervention.
- 23rd – 24th February weight bearing lameness recurrent (2/5) and the condition improved without intervention.
- 3rd March weight bearing lameness noticed with more severe condition (3/5), on CCTV shows Pahu steps into sapling in front of treatment cage causing lameness.
- Condition persist, 9th March examination revealed 1 cm deep hole in the sole penetrate to lateral hoof wall and laminae. Hole was unnoticed before because filled with mud. Treatment include widening the damaged sole to provide drainange and antibiotic cream applied.
- 10th march condition improved (1/5).
- 17th – 18th March x-ray performed with drh. B.J. Widyananta to know the damage. Results shows inflammation did reach the bone.

Diagnosis: **Subsolar Abscess. (Attachment I).**



X-ray result and medial hole in the wall of right hindleg connected to sole. Laminae exposed with pink color and pus.

Treatment

Predisposition factor for lameness is concrete floor, later covered with matras to provide soft surface.

Since lameness been observed (9th January), treatment given was:

- Irrigation with Iodine 2% on crack, OID.
- Topical antiinflammatory spray (YB spray[®])
- Neurosabe[®] (Vit B complex), 5 tab PO OID for 5 days.
- Warm water + Epsom salt dipping.
- Perubalsam + Levertin topical ointment, BID.

13th – 18 January added:

- Anti Tetanus Serum 1.500 IU, IM once.
- Meloxicam 15 mg[®], 13 tab PO OID for 5 days.
- Primadex Forte[®] (trimethoprim 160 mg; sulfamethoxazole 800 mg), 11 tab PO OID for 5 days

19th January – now added hoof supplementation for 6 months:

- Hoof Maker[®] 15 gr PO OID (ended in 11th March)
- Hoof Growth[®] 30 gr PO OID (till now).

11th – 18th March prophylactic treatment given to prevent infection on exposed laminae.

- Primadex Forte[®], 11 tab PO OID for 7 days.

Vaccination for Tetanus been given using TT Vaccine Sanbe Farma[®].

- First dose at 19th February
- Second dose at 29 March
- Annual booster will be given

18th March with drh. B. J. Widyananta, sole hole widened to provide treatment and healing process. Metronidazole also added to mixture of topical ointment.

19th March post treatment, granulation tissue already formed, lameness was sound.

12th April hoof growth estimated \pm 1 cm. Exposed laminae already covered with harden wall. Separated coronary band already replaced.



Medial toe of right hind leg (13th april 2019) shows good healing process.

REPRODUCTION

Serum progesterone examination was done in 1st December 2018 with results <0.05 ng/ml in Mandapa Clinical Laboratory. Series of examination needed to provide accurate results.

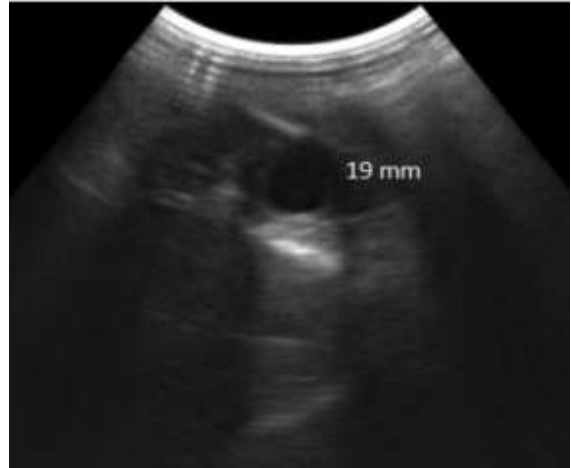
Per rectal ultrasound examination was done in 5th February by drh. Dedi Candra and drh. Aldino with results:

- Generally, reproduction status of Pahu was good and estimated to cycled. No abnormality found.
- Normal cervix with larger size and no intact hymen (suspected been copulate before, supported by scaring on vulva).
- Small uterus with no abnormality (small amount fluid in uterus cavity).
- Follicles in R ovary and L ovary
- No abnormality in Vesica Urinary.

Left Ovary (5 february)

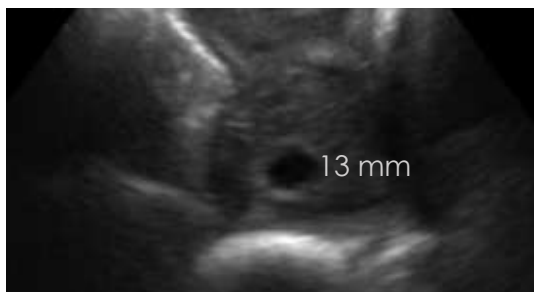


Right Ovarium (5 february)

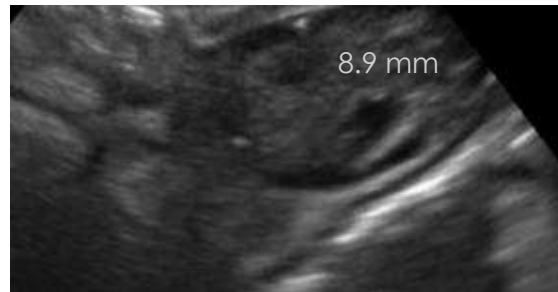


Second examination done in 19th February by drh. M. Agil, drh. Aldino, dan drh. Vidi. Third examination done in 12th April because delayed by preparation to release into paddock 5a with consideration not to add more stress to Pahu.

Left Ovary (19th February)



Left Ovary (12th April)



Reproductive status examination of Pahu.



Drh. Dedi and Drh. Aldino



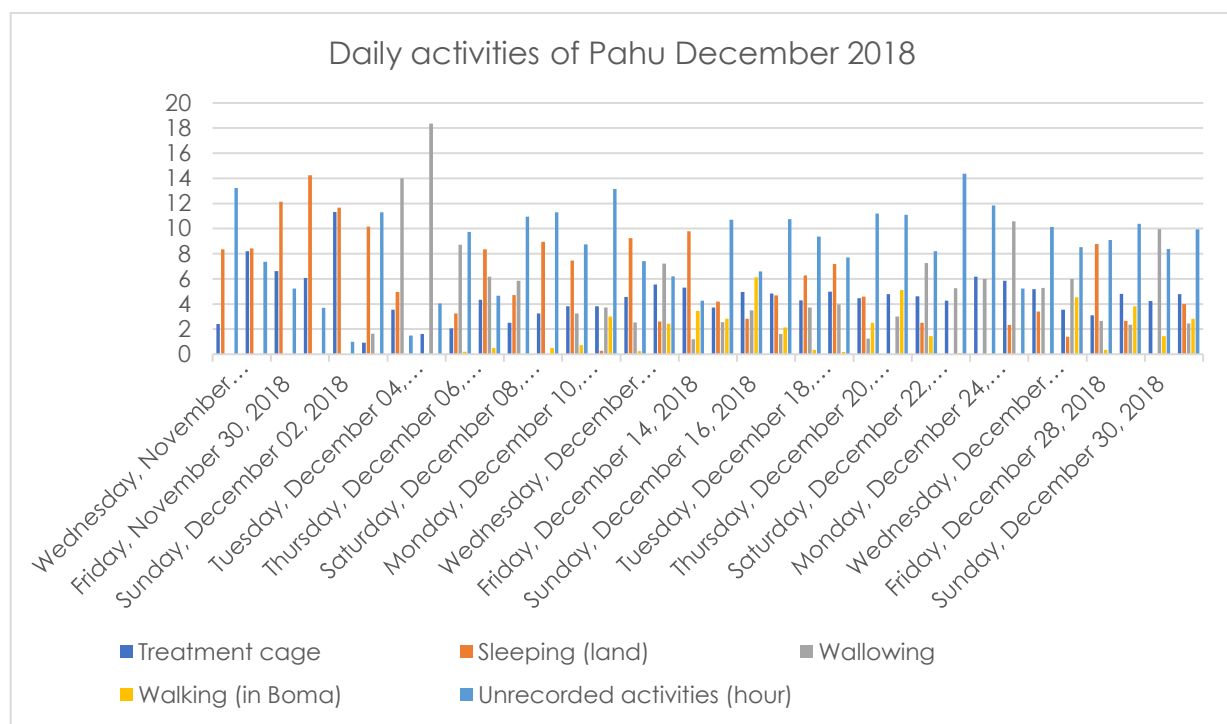
Drh. Aldino, Drh. Agil dan Drh. Marcel

BEHAVIOUR

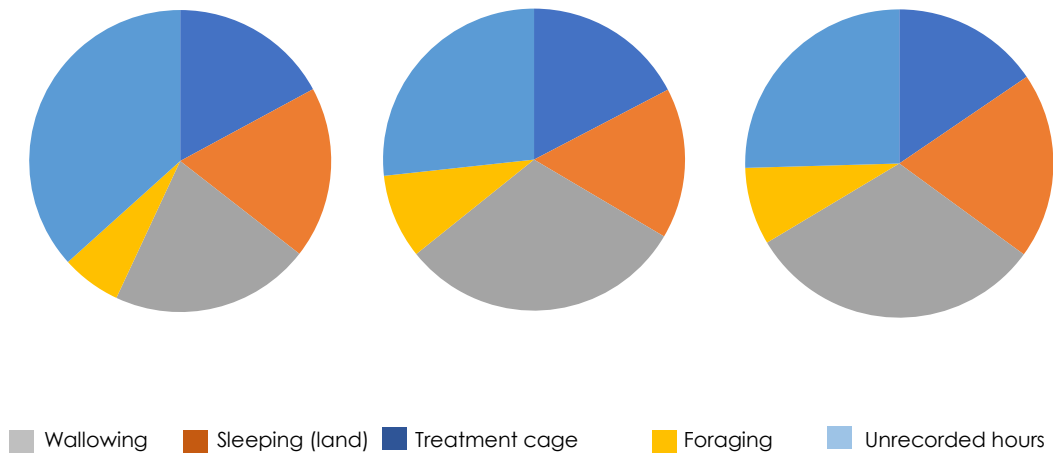
Sumatran rhino Pahu's daily routine was recorded by keeper with veterinarian supervision. Shift change of keeper is 07:00 – 18:00 (1 keeper) and 18:00 – 07:00 (2 keepers). 07:00 rhino enter treatment cage, for feeding and shower to provide physical examination by veterinarian. Pahu also trained to recumbent inside treatment cage by stimulate ventral part of her body. Rhino release again into boma around 08:00 till 09:00. Pahu usually went straight to the river for defecation, then continue wallowing. 15:00 Pahu enter treatment cage for second feeding and if there is medical procedure need to be done (blood taken, ultrasound, treatment, etc.). Night activities started 20:00, keeper hang feed inside treatment cage, door always open so Pahu could enter when ever convinient.

Daily activities of Pahu presented in table and figure, categorized as:

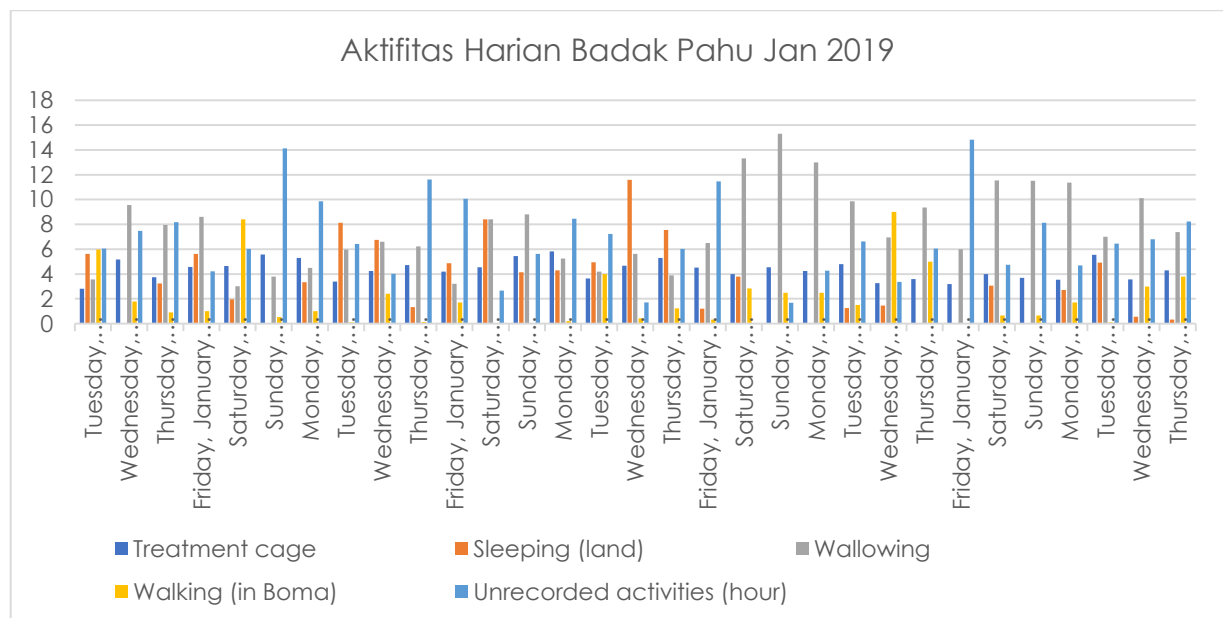
- 1) Treatment cage, 2) sleeping (land), 3) wallowing, 4) foraging, and 5) unrecorded hours.



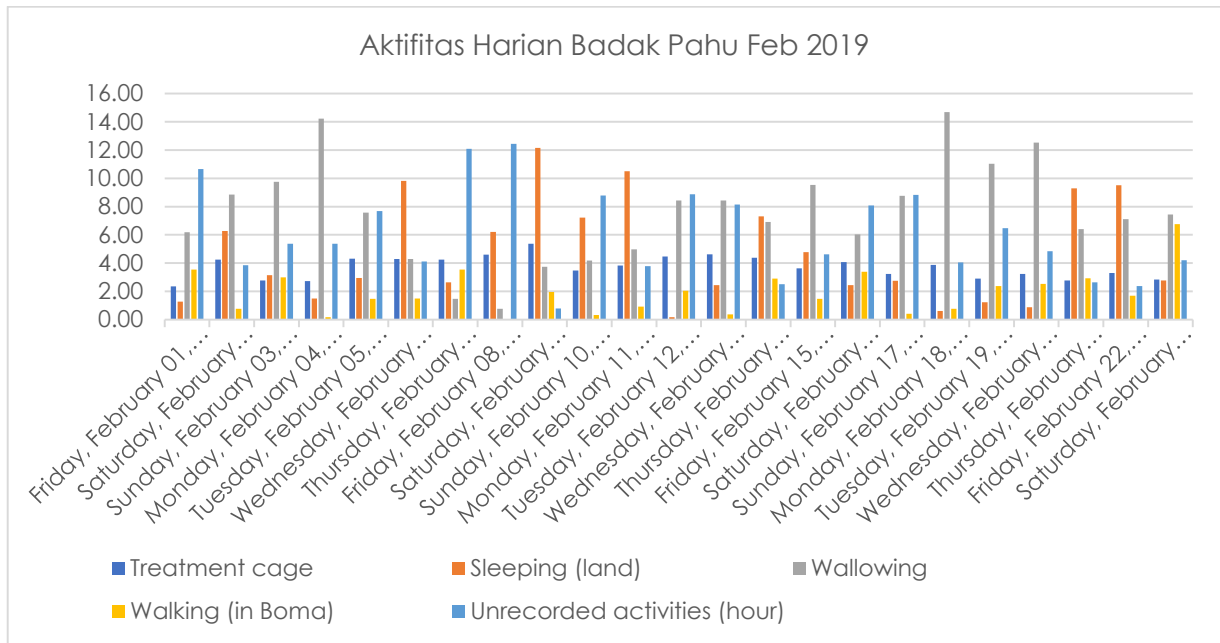
Average daily activities of Pahu December – January – February.



In December 2018, Pahu adapt with new environment (boma, human, etc.), as people with new working scheme. Pahu spend most of her day with wallong (more than 5 hours a day), with some adjustment if too much water in wallow Pahu will dig around to add more clay or if not enough water Pahu will make another wallow. Keeper also do maintenance with wallow such as adjusting water content. Pahu also spend her day sleeping (in land) for daily average more than 4 hours a day in several area inside boma. Pahu spend her time in treatment cage was average 4 hours a day with keepers and veterinarian. Her foraging behavior limited due to boma size and feed already provided by keeper. Unrecorded hours average was almost 9 hours a day.



In January 2019, Pahu average activities was wallowing (more than 7.5 hours), treatment cage (more than 4.5 hours), sleeping (in land) (more than 4 hours), and foraging (less than 2.5 hours). Average unrecorded hours were more than 6.5 hours.



In Februari 2019 average daily activities consists of wallowing (less than 8 hours), sleeping (in land) (more than 4.5 hours), in treatment cage (almost 3 hours), and foraging (almost 2 hours). Average unrecorded hours were more than 6 hours.

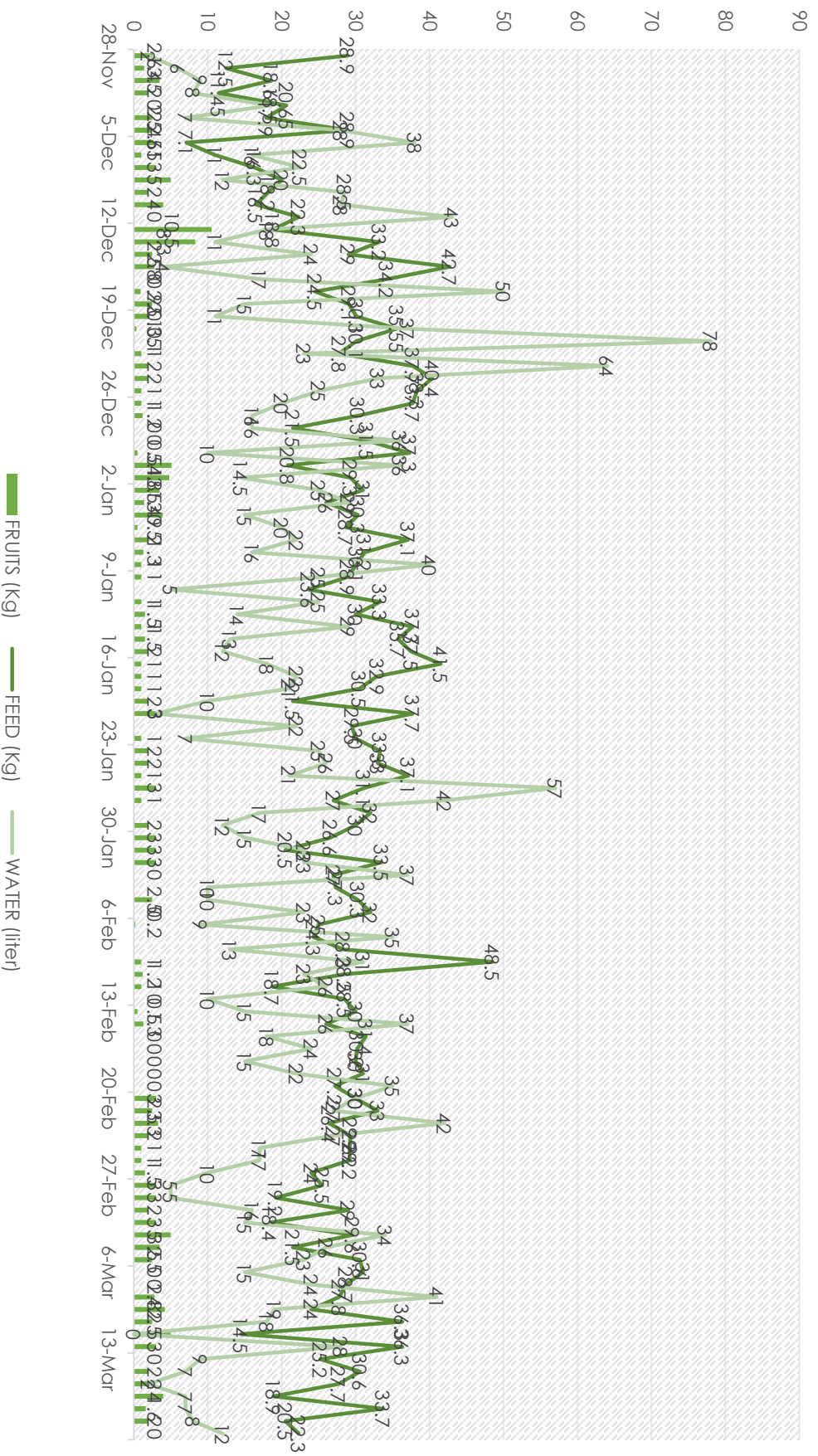
INTAKE

Feeding target for Pahu is 10 % of body weight daily (\pm 35 kg). Feeding regiment break into 3 part during quarantine period, 10 kg handfeed in morning, 10 kg handfeed in afternoon, and 10 kg hang in treatment cage at night. Total species of forage consumed by Pahu during quarantine period was 81 species. 20 species with highest amount consumed are:

No	Local Name	Scientific Name	Total (kg)
1	Nancakng (Benuq)	<i>Macaranga bancana</i>	318.1
2	Tempelolau	<i>Ficus sp</i>	273.2
3	Nancaakng sisiit (Benuaq)	<i>Macaranga winkleri</i>	266.7
4	Obeeq (Benuaq)	<i>Artocarpus lanceifolius</i>	261.2
5	Beringin (Indonesia)	<i>Ficus benjamina</i>	208.2
6	Balut (Tunjung)	<i>Neonauclea formicaria</i>	178
7	Cempedak (melayu), Nakaatn (Benuaq)	<i>Artocarpus integer</i>	162.8
8	Gaka omang	<i>Photos sp</i>	157
9	Pulai (Indonesia), Nyelutui (Tunjung)	<i>Alstonia scholaris</i>	139.2
10	Engkebokng (Tunjung)	<i>Macaranga gigantea</i>	133
11	Nyeretekng	<i>Crotocsylum sp</i>	127.6
12	Lunuuk Dukutn (Tunjung)	<i>Ficus sondaica</i>	123.9
13	Ahaq (Tunjung)	<i>Ficus variegata</i>	118.2
14	Belayatn	<i>Hibiscus sp</i>	110.4
15	Gerungakng	<i>Crotocsylum sp</i>	108.2
16	Pahaaq (Benuaq)	<i>Elateriospermum tapos</i>	46
17	Deraya	<i>Myristica villosa</i>	31.6
18	Gaka Ketilep (Tunjung)	<i>Mussaenda lanuginosa</i>	24.7
19	Kareumbi (Indonesia), Butaq (Tunjung)	<i>Homalanthus populneus</i>	24
20	Gaka Emperuq (Tunjung)	<i>Embelia javanica</i>	23.3

Fruits given as reward for habituation towards intervention, and there was *cempeda* trees in boma. Fruits given were mostly banana and *cempeda*. Water provided ad lib inside treatment cage via water container and also Pahu drink from the flowing small river in bottom part of boma. During quarantine period, Pahu's average of daily intake were feed: 28 kg, water: 22 litre, and fuits: 2 kg.

Feed, Water, and Fruits Daily Intake



SURVEILLANCE

Disease surveillance in nearby village for disease that could potentially harm for rhino will be done annually, collaborate with local authorities (department of agriculture, BVet banjarbaru). Surveillance focus on diseases priority: Trypanosomiasis (hemoparasite), Septicaemia enzootica, rabies, endoparasite, brucellosis, salmonellosis, and ectoparasite.

The aim of disease surveillance is to protect SRS Kelian from infectious disease. In 2003, five sumatran rhino in Selangor Malaysia died because trypanosomiasis in 18 days, four of sumatran rhino was wild capture translocated to captivity (Mohamad et al., 2004). Trypanosomiasis suspected transmitted by tabanidae from nearby water buffalo population as reservoir.

Based on BVet Banjarbaru in October 2017 there are sudden death of more than ten cattle in Long Iram village (25 km from SRS Kelian), and isolated *Trypanosoma sp* from life animal, followed up by Focus Group Discussion at 13 August 2018 resulting recommendation to eradicate the disease in nearby village. Disease surveillance and control was done in 27th February – 1st March 2019. In long iram village 1 cattle found to be positive of trypanosomiasis by native examination, and treated with Diminazine Aceturate (Tryponil®) IM 2x administration. Sample taken in nearby village of SRS Kelian with 25 km radius include: Tutung, Lakan Bilem, Kelian Dalam, Kelian Luar, Melapeh Baru, and Long Iram. Analysis was done in BVet Banjarbaru laboratory using blood smear, endoparasite exam, serology (ELISA), and PCR for Trypanosomiasis. Positive sample will be followed up by agricultural department of Kutai Barat with support for Konsorium ALeRT – IPB.

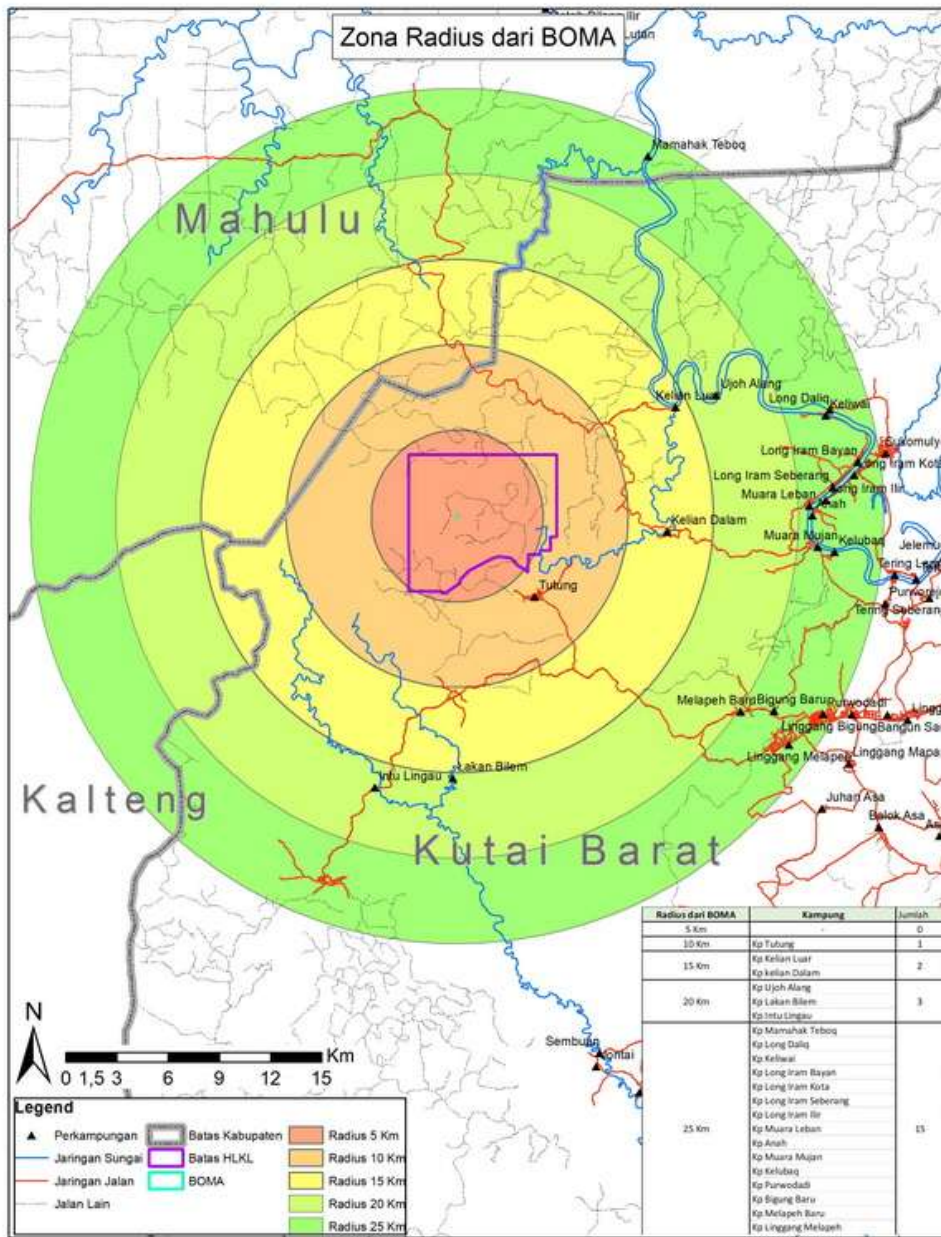
Sample Examination Results for SRS Kelian Nearby Village (Attachment II-V)

Examination	Total	Positive	Negative	Seropositive	Seronegative	Others
Hemoparasite	110	0	106	0	0	4
<i>Trypanosoma</i> Elisa	113	0		48	62	0
<i>Trypanosoma</i> PCR	81	0	81	0	0	0
<i>Brucella Abortus</i> RBT	81	0		0	81	0
Endoparasite	46	0	23	0	0	30

Hemoparasite: *Theileria sp* 4. Pemeriksaan Cacing: *Cooperia sp* 3, *Eimmericia sp* 1, *Fasciola sp* 19, *Paramphistomum sp* 3, *Strongyloides sp* 1, dan *Trichostrongylus sp* 3.

Hemoparasite found was *Theileria sp*. 3.64% and endoparasite found were *Cooperia sp*. 6.52%, *Eimmericia sp*. 2.17%, *Fasciola sp*. 41.3%. *Paramphistomum sp*. 6.52%, *Strongyloides sp* 2.17%, and *Trichostrongylus* 6.52%.

Trypanosoma sp using ELISA method found 42.48 % but didn't show in PCR, these mean possibly outbreak have been occurred, so survived animal developed antibody against the disease. In this study we didn't find *Brucella abortus* with RBT method.



Map of SRS Kelian and nearby village

HEALTH PROGRAM

Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12
BW (4x)	BW (4x)	BW (4x)	BW (4x)	BW (4x)	BW (4x)	BW (4x)	BW (4x)	BW (4x)	BW (4x)	BW (4x)	BW (4x)
USG (8x)	USG (8x)	USG (8x)	USG (8x)	USG (8x)	USG (8x)	USG (8x)	USG (8x)	USG (8x)	USG (8x)	USG (8x)	USG (8x)
PE	PE	PE	PE	PE	PE	PE	PE	PE	PE	PE	PE
AM	AM	AM	AM	AM	AM	AM	AM	AM	AM	AM	AM
CBC	CBC	CBC	CBC	CBC	CBC	CBC	CBC	CBC	CBC	CBC	CBC
FOB	FOB	FOB	FOB	FOB	FOB	FOB	FOB	FOB	FOB	FOB	FOB
URI	URI	URI	URI	URI	URI	URI	URI	URI	URI	URI	URI
KS			KS			KS			KS		
FE			FE			FE			FE		
PA											
VT											
SV											

Examination

- (BW) Body Weight: weekly
- (USG) Reproduction Ultrasound: 2x/Week
- (PE) Physical exam: daily
- (AM) Alometric: monthly
- (CBC) Complete Blood Count: monthly
- (FOB) Fecal Occult Blood test: monthly
- (URI) Urinalysis: monthly
- (KS) Salmonella Culture: 3 month/once
- (FE) Fecal exam: 3 month/once
- (PA) Proximate analysis: Yearly

Preventive Program

- (VT) Tetanus Vaccination: Yearly
- (SV) Disease Surveillance: Yearly

Protection for other animal specially Rabies carrier needed special attention due to Kutai Barat district is endemic rabies.

Yearly evaluation of SRS Kelian management with experts need to be done.

FACILITIES



Heavy rain can cause water flooding in electrical fence resulting in decreased voltage and potentially harmful for rhino and human. Special attention should be given when heavy rain occurs, meanwhile current management was to move rhino to boma.



Flooded area was in paddock 5a near the road, and paddock 5b in swamp area, treatment cage area, and road side. Drainage needed to be installed properly before accepting new rhino or moving current rhino to paddock 5b.

Workshop Desain of Organization and Operational of SRS Kelian



In the end of quarantine period of Pahu, workshop design of organization and operation of SRS Kelian was done, with participation by Director of Biodiversity Conservation KSDAE.

Sumatran Rhino Pahu release into Paddock 5a SRS Kelian

Quarantine period for Pahu was done in Wednesday, 20 March 2019 and release into paddock in SRS Kelian. Capture and tranlocation of Pahu from wild to captivity was important step toward effort for sumatran rhino rescue, which in natural habitat of Borneo was unviable.



Director of Biodiversity Conservation KSDAE, Drh. Indra Exploitasia, M.Si officially release Pahu into paddock in SRS Kelian.

Attachment



Pahu H1 in pit trap (25th November 2018)



Pahu in transport crate with keeper (26th November 2018)



Pahu in single cabin vehicle 4x4 WD (27th November 2018)



Loading transport crate into crane truck



activities during transportation



Pahu in treatment cage SRS Kelian H-3



Pahu in treatment cage SRS Kelian H-4



Pahu foraging in paddock 5a (25th March 2019)